CETHOSIA CYDIPPE DAMASIPPE C. & R. FELDER, 1867 (LEPIDOPTERA: NYMPHALIDAE: HELICONIINAE) IN TORRES STRAIT, QUEENSLAND, AUSTRALIA

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Abstract

Cethosia cydippe damasippe C. & R. Felder, 1867 has previously been recorded only from New Guinea, while *C. c. chrysippe* (Fabricius 1775) is endemic to Queensland, Australia, the two subspecies being separated by Torres Strait. We report two specimens of *C. c. damasippe* collected from two of the three northernmost islands of Torres Strait that are within 10 km of the southern Papua New Guinea coastline, *viz.* Saibai and Dauan. Although both specimens are possibly vagrants from Papua New Guinea, it is suggested that they might have originated from a resident population on Dauan Island, which has extensive areas of tropical semi-deciduous monsoon forest growing among granite boulders, a likely habitat for the as yet unrecorded larval host plant *Adenia heterophylla* (Passifloraceae). This record is thus the first for *C. c. damasippe* in Australian waters.

Introduction

The genus *Cethosia* Fabricius, 1807 is a widespread group of tropical nymphalid butterflies commonly known as lacewings. The genus consists of 15 species (Küppers 2006) and occurs throughout the Indo-Australian Region, ranging from India and China, throughout Southeast Asia and its associated islands, to New Guinea and Australia (Woodhouse 1949, Tsukada 1985, Parsons 1998, Bascombe *et al*. 1999, Braby 2000, Küppers 2006).

Cethosia cydippe (Linnaeus, 1767) is an Australian Region species occurring in the Moluccas, Tanimbar, Kai, Aru, Waigeo, Misool, Biak, Yapen, New Guinea, Woodlark, Goodenough, D'Entrecasteaux, Trobriand, Rossell and Misima islands and in northern Queensland, Australia (Parsons 1998, Küppers 2006). Across this region, 15 subspecies are presently recognised (Küppers 2006), although Parsons (1998) considered a population from Misima Island to represent an additional, undescribed subspecies. Corbet (1949) believed that the holotype of *C. cydippe* originated from Ambon Island in the Southern Moluccas of eastern Indonesia but Parsons (1998) later expressed some doubt surrounding the type locality.

In Australia, *C. c. chrysippe* (Fabricius 1775) is endemic to Queensland, while *C. penthesilea paksha* Fruhstorfer, 1905 occurs in the Northern Territory (Braby 2000). The latter taxon is also known from Timor, Wetar, Western Daya Islands and Tanimbar in Indonesia (Küppers 2006).

In Queensland, *C. c. chrysippe* is considered common in lowland rainforest, including riparian forest (Braby 2000). It occurs along the east coast from Cape York to the Rocky River on Cape York Peninsula, and from Mt Webb,

south-west of Cooktown, south to Ollera Creek, north-west of Townsville (Braby 2000).

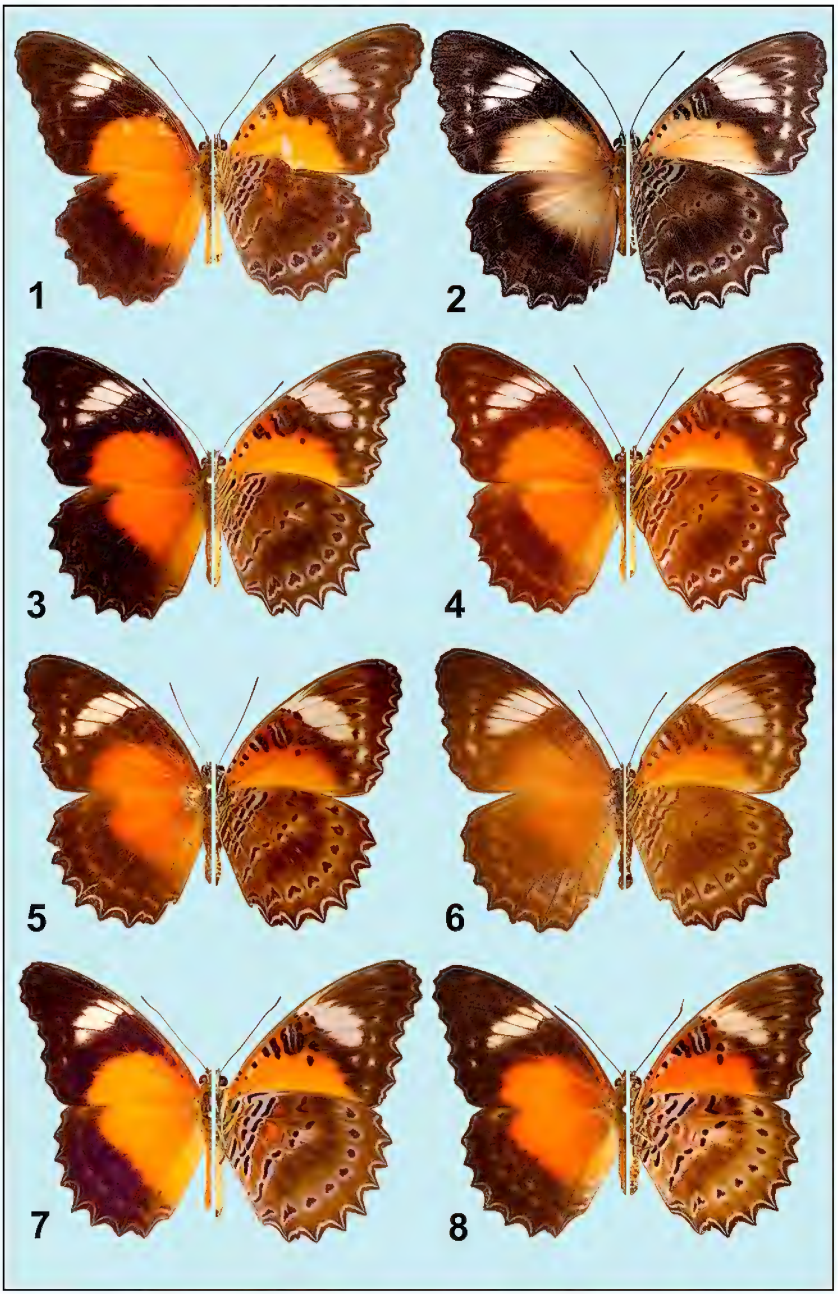
Directly to the north of Australia, *C. c. damasippe* C. & R. Felder, 1867 occurs on mainland New Guinea, including its close islands of Daru, Yule (Parsons 1998) and Yapen (Jobi) (Küppers 2006), which are all within 14 km of the New Guinea mainland. This subspecies is separated from *C. c. chrysippe* in Queensland by the expanse of Torres Strait, a body of tropical water approximately 150 km wide containing around 150 islands distributed across the Strait (Stanton *et al.* 2008). Within New Guinea, *C. c. damasippe* is widespread in the Western Province of Papua New Guinea (Parsons 1998), where it is recorded from Waidoro and Daru Island (Parsons 1998). These two locations are not a great distance (42 and 79 km respectively) from Dauan Island, which is one of the three northern islands of the Torres Strait (*viz.* Boigu, Saibai and Dauan) that are no more than 10 km from the southern Papua New Guinea coastline. Parsons (1998) indicated that, in Papua New Guinea, *C. c. damasippe* can be locally common and occurs in rainforest and marginal secondary vegetation from sea level to 2300 m.

Considering the proximity of the northern islands of Torres Strait to New Guinea, it is not surprising that two specimens of *C. c. damasippe* have been collected recently from these northern islands. These collections represent a new butterfly record for Australia and Torres Strait. Here we document and illustrate these specimens, provide field observations and comments for both, and discuss the taxon's diagnostic facies and its possible distribution in Torres Strait.

The following abbreviations refer to repositories from which material has been examined: ANIC – Australian National Insect Collection, Canberra; GRFC – G.R. Forbes collection, Brisbane; MTQ – Museum of Tropical Queensland, Townsville; QM – Queensland Museum, Brisbane; TLIKC – Joint collection of T.A. Lambkin and A.I. Knight, Brisbane.

Abbreviations of collectors' names are: AIK – A.I. Knight; EJLH – E.J.L. Hallstrom; GBM – G.B. Monteith; GRF – G.R. Forbes; HR – H. Rauber; IRJ – I.R. Johnson; LR – L. Radunz; SJJ – S.J. Johnson; TAL – T.A. Lambkin; TML – T.M. Lambkin; WWB – W.W. Brandt.

Figs 1-8. *Cethosia cydippe* (all figures not to scale, upperside left, underside right): (1-6) *C. d. damasippe* ♂♂ (1, 3): (1) Saibai Is., Torres Strait, Qld, 3.v.2000, AIK, [forewing length 48 mm], (3) Bulolo, PNG, 4.ii.1970, LR [45 mm]; ♀♀ (2, 4-6): (2) Dauan Is., Torres Strait, 22–27.ii.2014, SJJ&IRJ [45 mm], (4) Taraka, Lae, PNG, 12.xi.1973, GRF [40 mm], (5) Wau, Morobe Province, PNG, 1.v.1979, GRF [45 mm], (6) Finschhafen, Morobe Province, 22.iv.1973, GRF [40 mm]; (7-8) *C. d. chrysippe*: (7) ♂ Flying Fish Point, via Innisfail, NQ, 16.iv.1987, TAL [45 mm], (8) ♀ Flying Fish Point, via Innisfail, 21.iv.1985, TAL [40 mm].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Material examined

Cethosia cydippe damasippe (Figs 1-6)

QUEENSLAND: 1♂, Saibai Island, Torres Strait, 3.v.2000, AIK (TLIKC); 1♀, Dauan Island, Torres Strait, 09°25'S 142°32'E, 22–27.ii.2014, SJJ&IRJ (MTQ).

PAPUA NEW GUINEA: 1♂, Asuar, Madang, 27.viii.1971, GRF (GRFC); 1♂, Brown River, near Port Moresby, Central Province, 28.xii.1967, HR (QM); 2♀♀, same data except, 28.i.1968, 13.iv.1968; 1♂, same data except 19.x.1976, GRF (GRFC); 1♂, Bulolo, 4.ii.1970, LR (QM); 1♀, Finschhafen, Morobe Province, PNG, 22.iv.1973, GRF (GRFC); 2♂♂, Kassam Pass, Morobe Province, 16.viii.1977, GRF (GRFC); 2♂♂, Kodama Range (Mt Kaindi), 4500', New Guinea, 22.i.1952, WWB & EJLH (ANIC); 1♂, Kokoda Trail, 2.xii.1968, HR (QM); 3♂♂, 2♀♀, Kiunga, Fly River, New Guinea, 2.vii.-31.x.1957, WWB (ANIC); 8♂♂, 2♀♀, Lae, New Guinea, 10.vi.1951 (1♂), 30.vi.1951 (1♂), 6.vii.1951 (1♂), 17.vii.1951 (1♂), 26.vii.1951 (1♂), 7.x.1951 (1♂), 12.x.1951 (1♂), 16.x.1951 (1♂), 25.viii.1951 (1♀), 16.x.1951 (1♀), WWB & EJLH (ANIC); 1♂, Madang, 1.xi.1971, GRF (GRFC); 1♀, Sogeri, Central Province, 8.ix.1974, HR (QM); 7♂♂, 1♀, Subitana (Central District), 1800', New Guinea, 20.i.1949 (1♂), 27.vi.1949 (1♂), 1.viii.1949 (1♂), 27.vii.1949 (1♂), -.x.1949 (1♂), 14.x.1949 (1♂), 4.xii.1949 (1♂, 1♀), WWB & EJLH (ANIC); 1♂, Tapini, Loloipa River Bridge Camp, 2200', New Guinea, 15.xi.1957-15.ii.1958, WWB (ANIC); 1♀, Taraka, Lae, 12.xi.1973, GRF (GRFC); 1♂, Wau, Morobe Province, 17.ii.1967, GBM (QM); 1♀, same data except 1.v.1979, GRF (GRFC).

INDONESIA: 1♂, Tot Village, West Irian, 3.xi.1961 (GRFC).

Cethosia cydippe chrysippe (Figs 7-8)

QUEENSLAND: 2♂♂, 3♀♀, Flying Fish Point, via Innisfail, NQ, 3.v.1978, TAL&TML (1♂), 16.iv.1987, TAL (1♂), 21.iv.1985, TAL (3♀♀) (TLIKC); 1♂, 1♀, Coquette Point, Innisfail, NQ, 20.iv.1987, TAL (TLIKC); 1♂, 2♀♀, Jarra Creek, W of Tully, NQld, -.iv.1978, TAL&TML (TLIKC).

Field observations and comments

In May 2000, a male *C. cydippe* (Fig. 1) was collected (by AIK) on the western end of Saibai Island (9°22′46″S, 142°37′37″E) as it flew out of mangroves. Saibai is predominantly a mud island and its vegetation consists of primarily halophytic plant species, grassland, *Pandanus* and mangrove species. The occurrence of *C. cydippe* on Saibai was therefore enigmatic as the species is principally a forest dweller and thus unlikely to have originated on the island. At that time it was presumed to be a vagrant from either the Papua New Guinea mainland (just 5 km north), where only limited forest occurs (predominantly at Mabaduan, 9°16′35″S, 142°44′15″E, 17 km NE of Saibai), or from nearby Dauan Island (9°24′54″S, 142°32′22″E), which is approximately 7 km to the east.

In February 2014, a pale-morph female of *C. cydippe* (Fig. 2) was collected by one of us (SJJ) on the margin of monsoon forest at the summit of Mt Cornwallis, Dauan Island. On Dauan, the most dominant feature of the island is semi-deciduous monsoon forest, which grows extensively amongst hills composed of piles of exposed granite boulders, with the highest part of this

boulder stack (275 m) being Mt Cornwallis. Travel to the summit of Mt Cornwallis is possible but almost exclusively by helicopter.

Examination of the Saibai and Dauan Island specimens (Figs 1-2) showed that their external facies, and most obviously that of the female, were different from *C. c. chrysippe* from Australia and fitted the New Guinean subspecies, *C. c. damasippe* (Figs 3-6).

Discussion

The male of *C. c. damasippe* (Figs 1, 3) differs from that of *C. c. chrysippe* (Fig. 7) by its overall darker appearance on both the upper and undersides. On the upperside, the black margins are much more extensive in *C. c. damasippe* than in *C. c. chrysippe*. On the underside, *C. c. damasippe* is, again, more extensively black than *C. c. chrysippe* and, on the hind wing, the series of bright black basal bars edged with grey that is typical of *C. c. chrysippe* is greatly reduced or absent. The upperside wing bases of females of *C. c. damasippe* are variable in colour (Figs 2, 4-6) but are mostly a much duller red than those of *C. c. chrysippe*. Rarely, the wing bases in females of *C. c. damasippe* are not red but are pale orange (as in the female from Dauan) to pale yellow or even white, or greenish to greenish-grey (Parsons 1998). Although Parsons (1998) believed that the unusually coloured females of *C. c. damasippe* were predominantly confined to the southern lowlands of New Guinea, he did comment that the pale form had been recorded from the northern coastal regions of Papua New Guinea. Certainly the female collected on Dauan is geographically very close to the southern lowlands of Papua New Guinea.

Based on the collection of the female of *C. c. damasippe* from the top of Mt Cornwallis, it is possible that the male collected on Saibai, and the above female, originated from a resident population on nearby Dauan. That premise is supported by the recent collection on Dauan of six specimens of *Vindula arsinoe* (Cramer, [1777]), a species that shares at least one larval host plant with *C. cydippe* in Papua New Guinea and Australia, *viz. Adenia heterophylla* (Blume) Koord. (Passifloraceae) (Parsons 1998, Braby 2000). Within the region, *A. heterophylla* is recorded from Koey Ngurtai Island, Torres Strait (just north of Badu Island) and the Oriomo River near Daru in Papua New Guinea (Australia's Virtual Herbarium 2015). However, the Torres Strait Regional Authority (2013) did not list *A. heterophylla* in its plant listings from Dauan Island and thus it also remains a possibility that the Saibai and Dauan specimens (and perhaps also *V. arsinoe*) are vagrants from Papua New Guinea.

If the infrequent sighting of this species on Dauan reflects the host plant's restricted distribution on the island, where it might only occur in more upland, remote and inaccessible parts, rather than vagrancy from Papua New Guinea, then *C. c. damasippe* might also be found on islands further south in Torres Strait. Some of these islands contain tracts of similar forest (Regional

Ecosystems 2014) but, due to the environments where *C. c. damasippe* might fly, it has thus far not been detected. In particular, *C. c. damasippe* might occur on Gabba Island (approximately 37 km SE of Dauan), which has some areas of granite boulders and semi-deciduous monsoon forest similar to Dauan but is uninhabited and as yet not visited by lepidopterists.

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